

# Work Order ID 55175

January 8, 2010 11:56:26 AM

Page 1

Item ID: D3989-1

Accept

Setup Start

Revision ID:

Stop

Item Name: Seal

Start Date: 1/08/10 Start Qty: 324.00

Cust Item ID:

Required Date: 1/25/10 Req'd Qty: 324.00

Customer:

Reference:

Approvals: Process Plan: CZ Date: 10/01/08 Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	----------------	--------------	--------------	---------------	---------------	------------------	----------------

Draw Nbr	Revision Nbr
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D3989	A
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100

0.00



Purchasing

Memo

0.00

Purchasing

Issue P/O: 11068  
Purchase part as per Dwg D3989  
part #: SCN//4317-3/4X9  
Possible Supplier: Bertrand  
Material release note required

CZ 10/01/08 324

110

Receive & Inspect for Damage & Mat'l Certs

0.00



Packaging

Memo

0.00

Packaging

Purchasing 324

# Work Order ID 55175

January 8, 2010 11:56:26 AM

Page 2

Item ID: D3989-1

Accept

Setup Start

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Stop

Item Name: Seal

Start Date: 1/08/10 Start Qty: 324.00

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Customer:

Reference:

Run Start

Approvals:

Process Plan:

Date:

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/  
Work Center ID

Operation  
Description

Set Up/  
Run Hours

Draw  
Number

Draw  
Rev.

Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

120

QC6- Inspect dimensions to drawing

0.00

2) S. 10/02/07

+12 Rolls @

QC

Memo

0.00

324 ft.

Quality Control

130

Identify as per dwg & Stock Location: 917

0.00

Packaging

Memo

0.00

Packaging

10/02/11 (12)  
307 AK

140

QC21- Final Inspection - Work Order Release

0.00

QC

Memo

0.00

Quality Control

10/02/11 JF

MF  
10-2-11

# Picklist Print

January 8, 2010 11:56:26 AM

Page 1

Work Order ID: 55175



Parent Item: D3989-1



Parent Item Name: Seal



Start Date: 1/08/10

Required Date: 1/25/10

Comments: IPP rev A 10.01.08 new issue EC verified by:DD

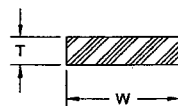
Start Qty: 324.00

Required Qty: 324.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
D3989-1P  Seal		Purchased	No				f	0.0000	324.0000 		1/10/2/9	324

# SPECIFICATION CONTROL DRAWING

C210101108  
W10.55175.



## D3989-X-YYY SEAL

WHERE YYY REPRESENTS LENGTH IN TENTHS OF INCHES

DART P/N	MANUFACTURER	MANUFACTURER P/N	'T' THICKNESS	'W' WIDTH
D3989-1-YYY	3M	4317	0.375	0.750

EG: 0.375" X 0.750" X 36" SEAL = D3989-1-360

**RELEASED**  
2010-01-06  
*ms*

### NOTES:

- 1) MATERIAL: 3M URETHANE FOAM TAPE SERIES 4300
- 2) FINISH: NONE
- 3) TOLERANCES: ALL DIMENSIONS SHOWN FOR REFERENCE ONLY
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: N/A
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 2 LBS / FT<sup>3</sup>

A		NEW ISSUE		PH	09.08.24
REV.	DESCRIPTION			BY	DATE
DESIGN	PH	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA			
DRAWN	PH				
CHECKED	GO	DRAWING NO.	REV. A		
MFG. APPR.	DA	D3989	SHEET 1 OF 1		
APPROVED	MA	TITLE	SCALE		
DE APPR.	MA	SEAL	NTS		
DATE	09.08.24	COPYRIGHT © 2009 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR REPRODUCED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD			



Dart Aerospace Ltd.  
1270 Aberdeen Street  
Hawkesbury, ON K6A 1K7  
Tel: 613 632 9577  
Fax: 613 632 1053

# PURCHASE ORDER

Purchase Order ID PO11068

Purchase Order Date 1/08/10

PO Print Date 1/08/10

Page Number 1 of 2

Order From : VC-BER001

BERTRAND BODY SHOP & WELDING SUPPLIES  
128 LONGUEUIL STREET  
BOX 346  
L'ORIGNAL, ON K0B 1K0  
CA



Contact Name		Buyer	Chantal Lavoie
Vendor Phone	613 675 4627	Requisition Nbr	
Vendor Fax	613 675 4774	Tax Resale Nbr	10127-2607
Vendor Account Nbr		Terms	Net 30
		Currency	CAD
		FOB	

Ship To : DART AEROSPACE LTD 1270 ABERDEEN  
HAWKESBURY, ON K6A 1K7  
CANADA

Line Nbr	Reference Revision ID Vendor Part Number	Description/ Mfg ID	Req Date/ Taxable	Req Qty/ Unit of Measure	Ship Method	Unit Price
1	D3989-1P	Seal	1/25/10 Yes	324.00 f	Yours ppd	\$0.7807

CERTIFICATE OF CONFORMITY  
REQ'D UPON DELIVERY

Special Inst: AS PER DWG D3989 REV. A  
B55175  
BERTRAND P/N: SCN/4317-3/4X9

2		HTCB436A220 SANDING BELT 220 GRIT	1/15/10 Yes	✓ 10.00 Each	Yours ppd	\$8.4500
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Deliver To: CNC

3		DUPIK DART GREY 1/2 PINT F5586K	1/11/10 Yes	✓ 1.00 Each	Yours ppd	\$22.2400
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Deliver To: FINISHING

No substitution or deviation with  
consent.  
Certificate of Conformity or Ma  
Certification required when appl

Change Nbr: 1

Change Date: 1/08/10

Urgence/ Emergency Tel.: (613) 996-6666 24 heures / 24 hours  
 Permis d'expédition / Shipping Permit No.:SU7797



Distributeur de produits de carrosserie,  
 soudage, industriel et sécurité

Distributor of automotive,  
 welding, industrial and safety products

128 RUE LONGUEUIL C.P. 346 L'ORIGINAL, ONTARIO K0B 1K0  
 TEL.: (613) 675-4627 FAX: (613) 675-4774  
 bertrandsupplies@bellnet.ca www.bertrandsupplies.ca

CUSTOMER: 6329577

DART AEROSPACE LTD.  
 1270 ABERDEEN STREET  
 HAWKESBURY, ONTARIO  
 K6A 1K7

Préparé par :

2% de frais d'administration par mois sur tout compte passé du.  
 2% per month on overdue balance.

Livré par :

INVOICE	DATE	N° / NO.
	08/02/10	226031

SALES REP. : LUC PARISIEN  
 ORDER : 102068  
 REFERENCE : P.O. 11068  
 TERMS : NET 30 JOURS / N  
 SHIP : LIVREUR / OUR TP  
 SHIP TO :

SAME

TEL.: 613 632-5200

ITEM NO.

DESCRIPTION

QUANTITY

UNIT

LIST

DISC

PRGF

TOTAL TX

JCH/4317-3/4X9

UNIFORME PUMP CASE  
 3/4" X 7" (P.O.)

13 0 0

0.000 0.00

21.00

252.96 A

P.O. 11068

SPECIAL ORDER  
 NON RETURNABLE

8.02/09

2009 EXCELLENCE AWARDS WINNER

SUBTOTAL

252.96

A) REGISTER: 13482 5443 RT 0001

B) REGISTER: 134825466RT0001

EXEMPTION 6322-5207

GST : 12.65

PST : 0.00

Recu Par :

Received By:

CHARGE

265.61

TOTAL

265.61

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



# Single-Coated Foam Tapes

4100 • 4300 • 4500 • 4700 Series

## Technical Data

May, 2008

### Product Description

3M™ Single-Coated Foam Tapes will adhere to a variety of substrates, including latex-painted wood, lacquered wood, enameled steel, glass, aluminum, stainless steel, acrylic, ABS, and PVC (non-plasticized) as tape adhesion is typically satisfactory within 20 minutes and continues to build with additional time.

### Products

Note: The user is responsible for determining whether the tape is fit for a particular purpose and suitable for user's method of application.

#### 3M™ Urethane Foam Tape Series 4100

3M™ Urethane Foam Tape 4104	1/4 in.	(6.4 mm) thick
3M™ Urethane Foam Tape 4108	1/8 in.	(3.2 mm) thick
3M™ Urethane Foam Tape 4116	1/16 in.	(1.6 mm) thick

#### 3M™ Urethane Foam Tape Series 4300

3M™ Urethane Foam Tape 4314	1/4 in.	(6.4 mm) thick
3M™ Urethane Foam Tape 4317	3/8 in.	(9.5 mm) thick
3M™ Urethane Foam Tape 4318	1/8 in.	(3.2 mm) thick

#### 3M™ Vinyl Foam Tape Series 4500

3M™ Vinyl Foam Tape 4504	1/4 in.	(6.4 mm) thick
3M™ Vinyl Foam Tape 4508	1/8 in.	(3.2 mm) thick
3M™ Vinyl Foam Tape 4516	1/16 in.	(1.6 mm) thick

#### 3M™ Vinyl Foam Tape Series 4700

3M™ Vinyl Foam Tape 4714	1/4 in.	(6.4 mm) thick
3M™ Vinyl Foam Tape 4718	1/8 in.	(3.2 mm) thick
3M™ Vinyl Foam Tape 4726	1/16 in.	(1.6 mm) thick



# 3M™ Single-Coated Foam Tapes

4100 • 4300 • 4500 • 4700 Series

## Typical Physical Properties

Note: The following technical information and data should be considered representative or typical only and should not be used for specification purposes.

	Test Methods	Units	3M™ Urethane Foam Tape		
			4104	4108	4116
Adhesive Type:*			350	350	350
Approximate Thickness:		inch (mm)	0.250 (6.4)	0.125 (3.2)	0.062 (1.6)
Thickness Tolerance:		%	15	15	20
Color:			Natural-white	Natural-white	Natural-white
Release Liner:		inch (mm)	0.003 (0.08)	0.003 (0.08)	0.003 (0.08)
Liner Color:			White	White	White
Standard Length:		yard (meter)	18 (16.5)	36 (32.9)	36 (32.9)
Maximum Length:		yard (meter)	25 (22.9)	50 (45.7)	100 (91.4)
Standard Roll Diameter:		inch (mm)	15 (380)	15 (380)	11 (280)
Available Widths: (Min.-Max.)		inch (mm)	1/4-36 (6-914)	1/4-46 (6-1168)	1/4-46 (6-1168)
Normal Slitting Tolerance:		inch (mm)	± 1/32 (± .8)	± 1/32 (± .8)	± 1/32 (± .8)
Density: Foam with adhesive	ASTM D-3574	lb/cu ft (kg/cu m)	12 (192)	16 (256)	18 (288)
Hardness: Foam with adhesive	ASTM D-2240	Shore 00	75	75	75
Compression Deflection: Compress 25%	ASTM D-3574	psi (kPa)	4 (27.6)	6 (41.4)	12 (82.8)
Compress Set:	ASTM D-1667	% loss	8	8	12
Tensile Strength: Die "A"	ASTM D-3574	psi (kPa)	115 (795)	130 (895)	115 (795)
Elongation: Die "A"	ASTM D-3574	%	100	80	80
Thermal Conductivity:	ASTM C-518	BTU/hr/°F/sq ft/ inch (W/m-K)	0.5 (0.066)	0.5 (0.066)	0.5 (0.066)
Dielectric Strength:	ASTM D-149	volts/mil	50	70	90
Surface Resistivity: Non-adhesive side	ASTM D-257	ohms/sq	1 x 10 <sup>15</sup>	6 x 10 <sup>14</sup>	1 x 10 <sup>14</sup>
Surface Resistivity: Adhesive side	ASTM D-257	ohms/sq	1 x 10 <sup>15</sup>	1 x 10 <sup>15</sup>	3 x 10 <sup>15</sup>
Water Absorption: 30% Compression	ASTM D-1056	% by Volume	open cell - NA	open cell - NA	open cell - NA
Flammability Recognition: Foam with adhesive	UL 94HBF File #E76581	meets requirements	yes	no	no
Flammability Recognition: Foam with adhesive	F.M.V.S.S. 302	meets requirements	yes	yes	yes
Flammability Recognition: Foam with adhesive	F.A.R. 25.853 B-2	meets requirements	yes	yes	no
Flammability Recognition: Foam with adhesive	F.A.R. 25.853 B-3	meets requirements	yes	yes	yes
Mold Resistance: Foam with adhesive	ASTM G21-70	Growth after 28 days	none	none	none

\*3M™ Adhesive 350 is a medium-firm acrylic adhesive that provides a continuation of high wet grab and initial adhesion.

# 3M™ Single-Coated Foam Tapes

4100 • 4300 • 4500 • 4700 Series

## Typical Physical Properties (continued)

Note: The following technical information and data should be considered representative or typical only and should not be used for specification purposes.

	Test Methods	Units	3M™ Urethane Foam Tape		
			4314	4317	4318
Adhesive Type:*			430	430	430
Approximate Thickness:		inch (mm)	0.250 (6.4)	0.375 (9.5)	0.125 (3.2)
Thickness Tolerance:		%	15	10	30
Color:			Charcoal grey	Charcoal grey	Charcoal grey
Release Liner:		inch (mm)	0.003 (0.08)	0.003 (0.08)	0.003 (0.08)
Liner Color:			Tan	Tan	Tan
Standard Length:		yard (meter)	18 (16.5)	9 (8.2)	36 (32.9)
Maximum Length:		yard (meter)	18 (16.5)	9 (8.2)	36 (32.9)
Standard Roll Diameter:		inch (mm)	15 (380)	20 (508)	15 (380)
Available Widths: (Min.-Max.)		inch (mm)	1/4-46 (6-1168)	3/8-46 (9-1168)	1/4-46 (6-1168)
Normal Slitting Tolerance:		inch (mm)	± 1/32 (± .8)	± 1/32 (± .8)	± 1/32 (± .8)
Density: Foam with adhesive	ASTM D-3574	lb/cu ft (kg/cu m)	2 (32)	2 (32)	2 (32)
Hardness: Foam with adhesive	ASTM D-2240	Shore 00	8	6	10
Compression Deflection: Compress 25%	ASTM D-3574	psi (kPa)	0.3 (2.1)	0.3 (2.1)	0.3 (2.1)
Compress Set:	ASTM D-1667	% loss	5	5	5
Tensile Strength: Die "A"	ASTM D-3574	psi (kPa)	25 (170)	25 (170)	25 (170)
Elongation: Die "A"	ASTM D-3574	%	125	125	125
Thermal Conductivity:	ASTM C-518	BTU/hr/°F/sq ft/ inch (W/m-K)	0.3 (0.043)	0.3 (0.043)	0.3 (0.043)
Dielectric Strength:	ASTM D-149	volts/mil	40	40	20
Surface Resistivity: Non-adhesive side	ASTM D-257	ohms/sq	2 x 10 <sup>12</sup>	3 x 10 <sup>12</sup>	6 x 10 <sup>12</sup>
Surface Resistivity: Adhesive side	ASTM D-257	ohms/sq	6 x 10 <sup>12</sup>	5 x 10 <sup>12</sup>	1 x 10 <sup>13</sup>
Water Absorption: 30% Compression	ASTM D-1056	% by Volume	open cell - NA	open cell - NA	open cell - NA
Flammability Recognition: Foam with adhesive	UL 94HBF File #E76581	meets requirements	yes	no	no
Flammability Recognition: Foam with adhesive	F.M.V.S.S. 302	meets requirements	yes	yes	no
Flammability Recognition: Foam with adhesive	F.A.R. 25.853 B-2	meets requirements	yes	yes	no
Flammability Recognition: Foam with adhesive	F.A.R. 25.853 B-3	meets requirements	yes	yes	yes
Mold Resistance: Foam with adhesive	ASTM G21-70	Growth after 28 days	none	none	none

\*3M™ Adhesive 430 is a medium soft adhesive system that offers good quick stick to many types of surfaces along with excellent aging and UV resistance.

# 3M™ Single-Coated Foam Tapes

4100 • 4300 • 4500 • 4700 Series

## Product Features

3M™ Urethane Foam Tapes Series 4100 are a natural-white, firm, high-density, open-cell foam with pressure-sensitive adhesive on one side. The acrylic adhesive offers high initial quick stick to many types of surfaces along with excellent shear strength and high temperature performance. The adhesive is protected by a 0.003 inch (0.08 mm) thick white, silicone treated paper liner and has a firm rigid open cell urethane that offers excellent cushioning characteristics while allowing air or gas vapors to pass through the open cells. This product is placed on a 1.5 in. wide common core when the tape is 3/4 in. or less in width. Skip slitting is also used for roll stability on these narrow sizes. **Note:** 3M urethane foam tape series 4100 may turn yellow when exposed to light. Such yellowing affects only the appearance and not the physical performance of the tapes.

3M™ Urethane Foam Tapes Series 4300 are a conformable, grey, low-density, open-cell foam with pressure-sensitive acrylic adhesive on one side. The adhesive is protected by a 0.003 inch (0.08 mm) thick tan, silicone treated paper liner and has a very soft, conformable low density foam which can help seal out air, dust and light when compressed 50%. Application ideas include: recessed lighting, door, window and cabinet seals. It also can be used to help cushion, damp sound and absorb vibration in electronics such as printers, keyboards, computers, aircraft lights and automotive dash boards. This tape is available on individual cores and in blocks of 1.5 inches when the tape is 3/4 inch or less in width. **Note:** Extra care should be taken when handling these delicate rolls of tape to avoid damaging tape.

3M™ Vinyl Foam Tapes Series 4500 are a flexible, black, high-density, closed-cell foam with pressure-sensitive acrylic adhesive on one side. A 0.003 inch (0.08 mm) thick white, silicone treated paper liner is applied to the non-adhesive side of the foam so that the PVC can be cut to length and applied while leaving the liner in place.

3M™ Vinyl Foam Tapes Series 4700 are a flexible, black, medium-density, closed-cell foam with a pressure-sensitive acrylic adhesive on one side. The adhesive is protected by a 0.004 inch (0.1 mm) thick white, silicone treated paper liner which allows for die cutting without having to laminate another liner to the foam.

3M vinyl foam tape series 4500 and 4700 are durable, flexible closed cell vinyls which can help seal out dust, light and moisture when placed under 30% compression. These vinyl tapes offer excellent aging characteristics and will remain flexible when exposed to elevated temperatures and UV light. Application ideas include: dust and moisture seal for appliances, computers, copiers and other electronic and transportation equipment.